



# Optimize WANs Using Cisco WAAS Containers

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## Ways to Optimize WANs Using Cisco WAAS Containers

The Cisco Wide Area Application Services (Cisco WAAS) container is a powerful WAN optimization acceleration solution.



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**Note** In this chapter, Cisco WAAS device refers to the router and Cisco WAAS container refers to the container.

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## Prerequisites for Installing Cisco WAAS Containers

Before you install a Cisco WAAS container, you must configure the following in Cisco Prime Infrastructure:

- [Integrate Cisco Prime Infrastructure with Cisco WAAS Central Manager](#)
- [Import an OVA Image for Cisco WAAS Containers](#)




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**Note** Ensure that the name of the Cisco WAAS container does not exceed 22 characters.

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## Integrate Cisco Prime Infrastructure with Cisco WAAS Central Manager

To manage the Cisco-WAAS with the Cisco WAAS Central Manager, you must register with the Cisco WAAS Central Manager. Registration of Cisco WAAS with Cisco WAAS Central Manager can be done either from the Cisco WAAS CLI, or from the Cisco WAAS Central Manager GUI, or while activating the Cisco WAAS through Prime Infrastructure. The WCM periodically polls the Cisco 4451-X Integrated Services Router (ISR) to retrieve the current status information and perform configuration synchronization.

A typical Cisco WAAS deployment consists of both Prime Infrastructure and Cisco WAAS Central Manager applications. Cisco WAAS Central Manager IP is used during Cisco WAAS activation. After Cisco WAAS is activated, it registers with Cisco WAAS Central Manager. Prime Infrastructure needs the IP address and the server name of WCM for the following reasons:

- To inform Cisco WAAS Central Manager of the new Cisco WAAS
- For cross-launching Cisco WAAS Central Manager GUI for monitoring purposes




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**Note** Cisco WAAS Central Manager configuration is a one-time configuration. The Cisco WAAS Central Manager IP address is required for Prime Infrastructure to authenticate itself to Cisco WAAS Central Manager, and is configured in Prime Infrastructure using the Settings menu.

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**Note** If Cisco WAAS Central Manager IP is not configured in Prime Infrastructure, the newly activated Cisco WAAS will not be registered with Cisco WAAS Central Manager.

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To configure the Cisco WAAS Central Manager IP address and server name in Prime Infrastructure:

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- Step 1** Choose **Administration > Settings > System Settings**.
  - Step 2** Click **Service Container Management**.
  - Step 3** Enter the WCM IP address and the WCM server name.
  - Step 4** Click **Save**.

WCM can be deployed under the following condition:

Prime Infrastructure works only with the active Cisco WAAS Central Manager that is configured in Prime Infrastructure.

After a Cisco WAAS Central Manager failover, one of the following must take place for Prime Infrastructure-Cisco WAAS Central Manager interworking to operate properly again:

- Prime Infrastructure is reconfigured with the IP address of the new Cisco WAAS Central Manager.

- The failed Cisco WAAS Central Manager must become active.

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## Configure Single Sign-On for Launching Cisco WAAS Central Manager from Cisco Prime Infrastructure

Configuring the Single Sign-On (SSO) feature provides a seamless method to launch Cisco WAAS Central Manager from Prime Infrastructure using the existing Single Sign-On functionality.

To configure SSO:

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- Step 1** Choose **Administration > User, Roles & AAA > SSO Servers**.
- Step 2** Choose **Add SSO Server** from the Select a command drop-down list.
- Step 3** Select the type of SSL/TLS certificate being used by the SSO server. Select from either Self-Signed Certificate or Certificate Authority (CA) certificate type.
- Step 4** If using Self-Signed Certificate type enter the IP address of the Prime Infrastructure acting as the SSO server. If using CA certificate enter either the IP address or the FQDN of the server of the Prime Infrastructure server that will be the SSO server.
- Note** The browser cookies that provide the Single Sign-On functionality are stored in the browser according to either the IP address or the FQDN given here. So, you must be consistent in entering either the IP address or the FQDN across all of the clients to the SSO server.
- Step 5** Click **GO**.
- Step 6** Click **Save**.
- Step 7** Select **AAA Mode Settings**.
- Step 8** Select the **SSO** radio button.
- Step 9** Click **Save**.
- Step 10** Configure the WCM IP address. For information on how to configure the WCM IP address, see the [Integrate Cisco Prime Infrastructure with Cisco WAAS Central Manager](#)
- Step 11** After you configure the IP address, log out of Prime Infrastructure and log in to WCM and create a username.
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## Create Cisco WAAS Central Manager Users

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- Step 1** Log in to WCM.
- Step 2** Choose **Home > Admin > AAA > Users**.
- Step 3** Click **Create**.
- Step 4** Enter a username that matches the Prime Infrastructure username.
- Step 5** Choose **Role Management** and click **admin** to assign a RBAC role to create a user account.
- Step 6** Choose **Domain Management** and assign a role and domain.
- Step 7** Click **Submit**.

- Step 8** Choose **Devices > Configure > AAA > NCS Single Sign-On**.
- Step 9** Select the **Enable NCS Single Sign-On** check box and enter the CAS/SSO server URL.
- Step 10** Click **Submit** to create the certificate.
- Step 11** Click **Submit** after the certificate is created.
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## Ways to Launch Cisco WAAS Central Manager from Cisco Prime Infrastructure

You can cross-launch Cisco WAAS Central Manager in the following ways:

- [Launch Cisco WAAS Central Manager from Single Device](#)
- [Launch Cisco WAAS Central Manager from Multiple Devices](#)

### Launch Cisco WAAS Central Manager from Single Device

To cross-launch the Cisco WAAS Central Manager from the Device Work Center:

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- Step 1** Choose **Inventory > Device Management > Network Devices**.
- Step 2** Select the Cisco WAAS device.  
The device details are displayed in the pane below.
- Step 3** Click the **Service Container** tab.
- Step 4** Select the corresponding Cisco WAAS container and click **Launch WCM**.
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### Launch Cisco WAAS Central Manager from Multiple Devices

To cross-launch from the Deployed Services:

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- Step 1** Choose **Operate > Deployed Services**.
- Step 2** Select the corresponding Cisco WAAS container and click Launch WCM.
- Note** Note The Cisco WAAS Container Lifecycle enables a user to install, uninstall, activate, or deactivate the service container.
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## Import an OVA Image for Cisco WAAS Containers

To import an OVA image for an Cisco WAAS container:

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- Step 1** Choose **Services > Router Virtual Containers > WAAS-XE** .
- Step 2** Select an OVA image from one of the following locations:
- Device
  - URL
  - Protocol
  - File
- Step 3** Click **Submit** to import the image into Prime Infrastructure.
- Step 4** Click **Refresh** to view the imported image in the **Services > Router Virtual Containers > WAAS-XE > Services Catalogue** folder.
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## Configure Cisco WAAS Containers Automatically During Activation

A Cisco WAAS container can be configured in two different ways depending on whether you want to configure it on a single router ([Install a Cisco WAAS Container on a Single Device](#)) or multiple routers ([Install a Cisco WAAS Container on Multiple Devices](#)).

Installation of the Cisco WAAS container can be done in two ways. You can either install the container and activate it later, or you can install and activate the container at the same instance.



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**Note** Ensure that the name of the Cisco WAAS container does not exceed 22 characters.

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## Create a Cisco WAAS Container

To install Cisco WAAS container:

### Before you begin

- To install and activate a Cisco WAAS, make sure there is enough memory for each resource profile. You will need:
  - 4194304 KB memory and two CPUs for Cisco WAAS -750
  - 6291456 KB memory and four CPUs for Cisco WAAS -1300
  - 8388608 KB memory with six CPUs for Cisco WAAS -2500
- To install and activate a Cisco WAAS, you need 8 GB RAM in the router for the 750 resource profile.
- Once the Cisco WAAS is installed and activated, the Cisco AppNav is automatically configured.

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**Step 1** Choose **Services > Router Virtual Containers > WAAS-XE > Services Catalogue** to import an OVA image. For information on how to import an OVA image, see [Import an OVA Image for Cisco WAAS Containers](#).

**Step 2** After importing, click **Refresh** to view the imported image.

**Step 3** Click **Deploy**.

**Step 4** In the Network Wizard page, select the Cisco WAAS device on which you want to configure the container.

**Step 5** Choose the **Install** option or **Install and Activate** option to select a Resource Profile from the drop-down list.

**Note** You can select multiple Cisco WAAS devices. If you have chosen same Cisco WAAS devices in the Device Selection area, you can select the profile using the Resource Profile drop-down list. If you have chosen different Cisco WAAS devices in the Device Selection area, the Resource Profile drop-down list will be hidden in the Service Container Parameter area. You need to select the profile for each of the selected devices in the Device Specific Parameters area, and click Save.

**Step 6** Click **OK** to install the Cisco WAAS container.

**Step 7** Select the **Redirect Traffic to WAAS-XE with AppNav-XE** check box to install and activate

**Step 8** Click **OK** to install and activate the Cisco WAAS container.

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## Install a Cisco WAAS Container on a Single Device

To install an Cisco WAAS container on a single router:

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**Step 1** Choose **Inventory > Device Management > Network Devices**.

**Step 2** From the list that is displayed, choose the router on which you want to install the Cisco WAAS container.

**Step 3** Click the **Service Container** tab.

**Step 4** Click **Add** and enter the configuration details in each field.

**Step 5** Click **OK**.

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## Install a Cisco WAAS Container on Multiple Devices

To install an Cisco WAAS container on multiple routers:

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**Step 1** Choose **Services > Router Virtual Containers**

**Step 2** Select the Cisco WAAS folder that contains the imported OVA image.

**Step 3** Click **Deploy**.

From the list that is displayed, select the routers on which you want to install the Cisco WAAS container.

After you deploy, you can either click **Install** or **Install and Activate** ([Create a Cisco WAAS Container](#) )

**Step 4** If you choose **Install and Activate**, enter the following details in the Value Assignment area:

- Enter the Cisco WAAS IP Address/Mask

- Enter the Router IP/ Mask
- Enter a Service Container name
- Select a Resource Profile

**Step 5** Click **OK**.

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## Ways to Uninstall and Deactivate Cisco WAAS Containers

You can deactivate a Cisco WAAS Container either from the Device Work Center or from the Deployed Services. From the Device Work Center, you can deactivate a single Cisco WAAS container, but from the Deployed Services, you can deactivate multiple Cisco WAAS containers.

### Uninstall Cisco WAAS Container on a Single Device

To uninstall a single Cisco WAAS container from the Device Work Center:

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- Step 1** Choose **Inventory > Device Management > Network Devices**.
- Step 2** From the list that is displayed, select the router from which you want to uninstall the Cisco WAAS container by clicking it.
- Step 3** Click the **Service Container** tab in the bottom pane.
- Step 4** Click **Uninstall**.
- Step 5** Click **OK**.
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### Uninstall Cisco WAAS Container on Multiple Devices

To uninstall multiple Cisco WAAS containers from the Deployed Services:

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- Step 1** Choose **Services > Router Virtual Containers > WAAS-XE > Deployed Services**.
- Step 2** From the list that is displayed, select the routers from which you want to uninstall the Cisco WAAS containers by clicking them.
- Step 3** Click **Uninstall**.
- Step 4** Click **OK**.
- Note** When a Cisco WAAS virtual appliance is uninstalled through Prime Infrastructure, the corresponding Cisco AppNav configuration is removed.
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## Ways to Deactivate Cisco WAAS Containers

You can deactivate a Cisco WAAS container in the following two ways:

- [Deactivate a Single Cisco WAAS Container](#)
- [Deactivate Multiple Cisco WAAS Containers](#)

## Deactivate a Single Cisco WAAS Container

To deactivate a single Cisco WAAS container from the Device Work Center:

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- Step 1** Choose **Inventory > Device Management > Network Devices**.
  - Step 2** Select a Cisco WAAS device name from the device group list.
  - Step 3** Click the **Service Container** tab.
  - Step 4** Click **Deactivate**.
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## Deactivate Multiple Cisco WAAS Containers

To deactivate multiple Cisco WAAS containers from the Deployed Services:

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- Step 1** Choose **Services > Router Virtual Containers > WAAS-XE > Deployed Services**.
  - Step 2** Choose multiple Cisco WAAS device names from the list.
  - Step 3** Click **Deactivate**.
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